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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,894	08/27/2002	Deepa Ramaswamy	200-1576	7972

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EXAMINER

BEHNCKE, CHRISTINE M

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,894

Applicant(s)

RAMASWAMY ET AL.

Examiner

Christine M. Behncke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Non-Patent pertinent art (1 article).

DETAILED ACTION

1. This office action is in response to the Amendment and Remarks filed under 37 C.F.R. § 1.116 on 2 May 2005, in which claims 1-18 were presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 11-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Folkerts et al., US Patent Application Publication No. 2004/0034460.

3. **(Claim 1)** Folkerts et al. discloses a modular vehicle system controller for use with a hybrid electric vehicle ([0004]), said controller containing a plurality of integrated and removable software control portions ([0006], lines 11-14), wherein each respective software control portion corresponds to a certain hybrid electric vehicle drive system functionality (figure 1, [0008] and [0013]) such that the corresponding vehicle drive system functionality may be changed by removing one or more of the integrated software control portions and replacing it with a substitute software control portion ([0007] and [0013]), wherein the integrated software control portions contained within the controller are replaceable without removing the entire controller ([0007]-[0008]).

4. **(Claim 2)** Folkerts et al. further discloses wherein said plurality of portions includes a vehicle mode control portion, which is effective to select an operating mode of said vehicle (figure 2, block 50 and [0055]-[0056]).
5. **(Claim 3)** Folkerts et al. further discloses wherein said plurality of portions further includes an output torque requester control portion which is effective to receive torque commands from a plurality of vehicle subsystems and to determine a total output torque ([0055]-[0056] and figure 2).
6. **(Claim 11)** Folkerts et al. discloses a method of organizing a vehicle system controller for use with a hybrid electric vehicle ([0004]), said method comprising the step of: partitioning said controller into a plurality of integrated and removable software control portions ([0007]-[0008]), each respective control portion corresponding to a particular hybrid electric vehicle drive system functionality (figure 2, [0008] and [0065]).
7. **(Claim 12)** Folkerts et al. further discloses wherein said step of partitioning said controller into a plurality of removable control portions, each of said plurality of control portions corresponding to a particular vehicle functionality further comprises the step of: logically grouping said plurality of control portions into functional groups (figure 2, [0008] and [0065]).
8. **(Claim 15)** Folkerts et al. discloses a method of controlling a plurality of systems within a hybrid electric vehicle ([0004]), said method comprising the steps of: logically grouping said plurality of systems into functional hybrid electric vehicle drive system groups (figure 2, [0008] and [0065]); providing a vehicle system controller having a modular architecture ([0003]-[0004]); providing a plurality of removable modular system

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control software portions corresponding to each of said functional hybrid electric vehicle drive system groups (figure 2, [0008] and [0065]); and integrating said plurality of modular system control portions within the modular architecture of said vehicle system controller ([0065]), wherein the control portions may be removed from the architecture of the vehicle system controller without removing the vehicle system controller from the vehicle ([0007], [0008] and [0065]).

9. **(Claims 13 and 16)** Folkerts et al. further discloses wherein each of said plurality of control portions represents a removable hardware portion ([0005] and figure 2).

10. **(Claims 14 and 17)** Folkerts et al. further discloses wherein each of said plurality of control portions represents a removable software portion ([0013]).

11. **(Claim 18)** Folkerts et al. further discloses wherein said step of logically grouping said plurality of systems into functional groups further comprises the step of: maintaining a hierarchical control architecture for said plurality of systems ([0011] and figures 1 and 2).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Folkerts et al. in view of Mizuno et al., US Patent No. 6,555,928.

13. **(Claim 4)** Folkerts et al. discloses the modular vehicle system controller previously discussed wherein the controller could be used in a hybrid electric vehicle, controlling the powertrain control portion including battery packs, fuel cells and electric motors. Folkerts et al. does not disclose explicitly wherein the control portions include a battery management control portion to control the opening and closing of contactors within the pack. However, Mizuno et al. teaches a system for a hybrid electric vehicle with a plurality of partitioned control portions, wherein the hybrid electric vehicle includes a battery back (unit 36) and wherein the plurality of control portions further include a battery maintenance control portion which is effective to control opening and closing of contactors within the battery pack, monitor the battery pack for faults, and process the battery pack power limits (Column 12, lines 16-33).

14. **(Claim 5)** Mizuno et al. further teaches a driver information control portion which is effective to receive signals from vehicle sensors and to calculate vehicle operating data which is conveyed to a driver of a vehicle (Column 5, lines 41-58 and figure 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the system of Folkerts et al. with the teachings of Mizuno et al. because for a safe and functioning hybrid vehicle, a controller for monitoring and controlling the battery pack is essential. The system of Folkerts et al. would allow the battery control to be more easily replaced and updated without taking out the entire control system.

15. **(Claim 6)** Folkerts et al. further discloses wherein the vehicle includes at least one power source ([0008]), and wherein said plurality of control portions further includes

an energy management control portion which is effective to control the delivery of power to said vehicle by said at least one power source ([0055]-[0056]).

16. **(Claim 7)** Folkerts et al. further discloses wherein the plurality of control portions further comprises a brake system control portion which controls regenerative and engine compression braking functions within said vehicle ([0049]).

17. **(Claim 8)** Folkerts et al. further discloses wherein the plurality of control portions further comprises a torque estimation control portion which estimates an amount of torque produced by said at least one power source ([0049] torque control coordinator block 50).

18. **(Claim 9)** Folkerts et al. further discloses wherein the at least one power source comprises an internal combustion engine ([0004]).

19. **(Claim 10)** Folkerts et al. further discloses wherein the plurality of control portions further comprises an engine control portion which controls a process and timing of when to startup and shutdown the internal combustion engine ([0049] and [0051]).

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

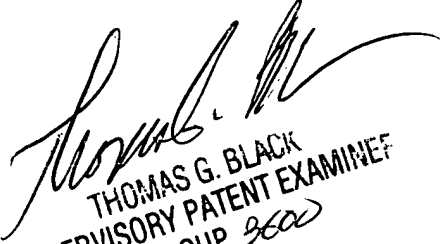
Rushton et al., "Algorithms and Software for Development of Modular Vehicle Architectures", March 2002; SAE International: SAE Technical Paper Series 2002-01-0140.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

06-30-2005


THOMAS G. BLACK
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